U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 035822

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL FOR APPROVAL: AUTHORIZATION BASIS CHANGE NOTICE 24590-WTP-ABCN-ESH-02-033, REVISION 0, *APPLICATIONS OF IBC 2000 FOR DETERMINATION OF CLASSIFICATION OF CONSTRUCTION TYPE FOR THE RPP-WTP PROCESS FACILITIES AND ANALYTICAL LABORATORY*

Bechtel National, Inc. (BNI) is submitting Authorization Basis Change Notice (ABCN), 24590-WTP-ABCN-ESH-02-033, Revision 0, to the U.S. Department of Energy, Office of River Protection and the Office of Safety Regulation (OSR) for approval (attached). This ABCN requests approval to replace the non-structural portions of the 1997 Uniform Building Code (UBC) with corresponding chapters of the 2000 International Building Code including the implementing standard National Fire Protection Association 801 that references the 1997 UBC.

Approval of this ABCN is requested within 30 days.

An electronic copy of ABCN 24590-WTP-ABCN-ESH-02-033, Revision 0, is provided for the OSR's information and use.

Please contact Mr. Bill Spezialetti at (509) 371-4654 for any questions or comments.

Very truly yours,

R. F. Naventi
Project Manager

TB/slr

Attachment: Authorization Basis Change Notice (ABCN), 24590-WTP-ABCN-ESH-02-033, Revision 0, plus attachments

CCN: 035822

cc: Name (ALPHABETIZE)	Organization	MSIN
Barr, R. C. w/a (1 hard copy and 1 electronic copy)	OSR	H6-60
Barrett, M. K. w/a	ORP	H6-60
Beranek, F. w/o	WTP	MS6-P1
Betts, J. P. w/o	WTP	MS14-3B
Dickey, R. w/a	WTP	MS6-R1
DOE Correspondence Control w/a	ORP	H6-60
Erickson, L. w/a	ORP	H6-60
Gibson, K. D. w/a	WTP	MS6-R1
Hamel, W. F. w/o	ORP	H6-60
Hanson, A. J. w/o	ORP	H6-60
Klein, D. A. w/o	WTP	MS6-P1
Krahn, D. w/a	WTP	MS6-R1
Naventi, R. F. w/o	WTP	MS14-3B
Ortiz, C. w/a	WTP	MS6-R1
PDC w/a	WTP	MS5-K1
QA Project Files w/a	WTP	MS4-A2
Ryan, T. B. w/a	WTP	MS6-R1
Spezialetti, W. R. w/o	WTP	MS6-P1
Taylor, W. J. w/a	ORP	H6-60
Veirup, A. R. w/o	WTP	MS14-3B

Authorization Basis Change Notice

ABCN Number 24590-WTP-ABCN-ESH-02-033 Revision 0

ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

I. ABCN Review and Approval Signatures

A. ABCN Preparation

	Print/Type Name	Signature	Date
Preparer:	Dave Houghton / Raliegh M. Nakao		
Reviewer:	Chuck McKnight / Larry D. Kessie		

B. Required Reviewers

Review Required? *For each person checked, that signature block must be completed.*

Review Required?		Print/Type Name	Signature	Date
☒	ES&H Manager	Fred Beranek		
☒	QA Manager	George Shell		
☒	PSC Chair	Bill Poulson		
☐	Commissioning/Training Manager			
☒	Engineering Manager	Fred Marsh		
☐	Construction Manager			
☐	Area Project Manager			
☐	Research & Technology Manager			
☒	PMT Chair	Dennis Klein		
☒	CS&A Manager	Don Scribner		
☒	Deputy EM-Facilites	Steve Foelber		
☒	HVAC/Fire Protection Manger	Jan Sanders		

C. ABCN Approval

	Print/Type Name	Signature	Date
WTP Project Manager	Ron Naventi		

ABCN Number 24590-WTP-ABCN-ESH-02-033 Revision 0

ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

II. Description of the Proposed Change to the Authorization Basis

D. Affected AB Documents:

Title	Document Number	Revision
Appendix C; Implementing Standards, Safety Requirements Document Volume II	24590-WTP-SRD-ESH-01-001-02	1
Preliminary Safety Analysis Report to Support Construction Authorization: General Information	24590-WTP-PSAR-ESH-01-002-01	0
Preliminary Safety Analysis Report to Support Construction Authorization: PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	E
Preliminary Safety Analysis Report to Support Construction Authorization: LAW Facility Specific Information	24590-WTP-PSAR-ESH-01-002-03	0
Preliminary Safety Analysis Report to Support Construction Authorization: HLW Facility Specific Information	24590-WTP-PSAR-ESH-01-002-04	0

Decision to Deviate ☐ Yes ☒ No

If yes, DTD Number/Revision _____ DTD Closure Date: _____

Initiating Document Number/Revision _____

E. Describe the proposed changes to the Authorization Basis Documents:

Change the application of non-structural portions of the 1997 edition of the Uniform Building Code (UBC) (Volume 1, Chapters 1 through 15 and Chapters 24 through 35) to the 2000 edition of the International Building Code (IBC) (Chapters 1 through 15 and Chapters 24 through 35) for the main process buildings (LAW, HLW, & PT) and Analytical Laboratory Facility.

The Balance of Facilities structures will continue to follow the 1997 UBC.

This change requires tailoring of implementing standards in the SRD Volume II Appendix C, to replace the non-structural portions of the 1997 UBC with the 2000 IBC including the implementing standard NFPA 801 that reference the 1997 UBC. Appropriate Sections 2.7 of the PSAR (General, PT, LAW, and HLW Volumes) are revised to change the building construction reference for Fire Protection Features from the UBC to the IBC including building classification for fire rating.

F. List associated ABCNs and AB documents, if any:

24590-WTP-SRD-ESH-01-001-02 Rev.1 *Safety Requirements Document Volume II*

24590-WTP-ABCN-ESH-02-026 Rev.0 *Compliance with DOE-O-420.1 Facility Safety*

G. Explain why the change is needed:

The UBC is a general building code in nature and does not specifically address the type of process facilities designed for the WTP. For the non-structural portion of the UBC, substantial building equivalencies are being pursued to adjust the UBC requirements to fit the special purpose industrial usage of WTP process buildings. By applying the IBC, the need for these equivalencies are eliminated and the process building will be in full compliance with the prescriptive non-structural portion of the code. The 2000 edition of the International Building

ABCN Number 24590-WTP-ABCN-ESH-02-033 Revision 0

ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

G. Explain why the change is needed:

Code (IBC) was jointly developed by the International Conference of Building Officials (ICBO), the Building Officals and Code Administrators International (BOCA), and the Southern Building Code Congress International, Inc. (SBCCI), all national codes authority groups. The IBC is the follow on model building code to the 1997 Uniform Building Code (UBC) and replaces the UBC. ICBO will not be updating the 1997 UBC. The IBC, which evolved from the UBC, provides for special industrial occupancies which more closely fit the design of the WTP project. The IBC specifically allows for the large volume industrial applications with little or no combustible loading such as found in the WTP process buildings. The IBC, through determination of type of construction allows more judicious application of fire proofing of exposed steel elements based on the more specific occupancy requirement and usage. In addition, the IBC provides requirements where the UBC was silent such as requirements for platforms. The IBC is, therefore, a more appropriate code for use by this project. With the IBC in place, Important to Safety (ITS) equipment areas would continue to be adequately protected as required by the SRD and as determined by the Fire Hazards Analysis.

The UBC is formatted into chapters grouped into volumes which separate non-structural requirements from structural requirements. The IBC follows a similar chapter format that correlates directly with the chapters in the UBC (See attachment 7 for comparison). There is very little cross reference or dependencies between the non-structural and structural section of the UBC or the IBC. Replacing the non-structural sections of the UBC (Chapters 1-15 and 24-35) with the corresponding chapters of the IBC has been evaluated to have no affect on the remaining structural sections of the UBC. The sponsoring organization for the UBC (ICBO) was conferred with and concurred that replacing the non-structural sections of the UBC with the corresponding chapters of the IBC was acceptable (See attachment 6). At WTP, the current requirements for both the SC-I HLW and PT structures apply the structural design standards of ACI 349 and non-structural standard the UBC as required by safety criteria 4.1-3. For the LAW facility, the current seismic loads used in the UBC analysis of the LAW facility bound the required seismic loads from the IBC 2000. The design criteria for the structural elements of the facility are enveloped by the UBC. The design values for the components will vary according to risk, but the critical items will be qualified to appropriate seismic levels according to risk.

H. List the implementation activities and the projected completion dates:

Activity	**Date**
Inform DOE that AB has been revised and formally transmit electronic version	30 days or less after DOE Approval
Distribute revised controlled copy pages / update WTP Library	30 days after DOE Approval

Revise the following implementing documents:

	Documents	**Describe extent of revisions**	**Date**
1			
2			

Describe other activities:	**Date**
1	

ABCN Number 24590-WTP-ABCN-ESH-02-033 Revision 0

ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

Describe other activities:	Date
2	

III. Evaluation of the Proposed Change

I. Is DOE approval required? Answer questions for Administrative Control changes OR Facility changes, not both.

For an Administrative Control change:	Yes	No
1. Does the revision involve the deletion or modification of a standard previously identified or established in the SRD? Explain:	☐	☐
2. Does the revision result in a reduction in commitment currently described in the AB? Explain:	☐	☐
3. Does the revision result in a reduction in the effectiveness of any procedure, program, or plan described in the AB? Explain:	☐	☐

For a Facility (technical) change:	Yes	No
1. Does the revision involve the deletion or modification of a standard previously identified or established in the SRD? Explain: The implementing standards for building construction, the 1997 UBC is being tailored to replace the non-structural portions with the later follow on standard the 2000 IBC. Related implementing standards for fire protection that reference the 1997 UBC for type of construction are also being tailored to reference the 2000 IBC for consistency. The 2000 IBC evolved from the UBC developed by the International Code Council consisting or representatives of the BOCA, ICBO, and SBCCI. It is an updated building code with provisions for the use of new materials and new building design to protect the public health, safety, and welfare. The IBC provides more detailed definitions of occupancy and usage more specifically addressing design features of the WTP while still providing adequate fire safety.	☒	☐
2. Does the revision create a new Design Basis Event (DBE)? Explain: **The change from the UBC to the IBC for the non-structural portions of the process buildings does not affect the important to safety design or function of the WTP. There are no changes that change an already analyzed event or create a new event.**	☐	☒

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ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

3.	Does the revision result in the more than a minimal increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report? Explain: The change from the UBC to the IBC for the non-structural portions of the process buildings provides for adequate fire safety of the WTP and does not change ITS SSC that affect either the frequency or consequence of any DBE.	☐	☒
4.	Does the revision result in more than a minimal decrease in the Safety Functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function? Explain: The change from the UBC to the IBC for the non-structural portions of the process buildings provides for adequate fire safety of the WTP and does not change any function of ITS SSC.	☐	☒

J. Complete the safety evaluation by describing how the revision to the AB:

1. will continue to comply with all applicable laws and regulations (e.g., 10 CFR 830, 10 CFR 835), conform to top-level safety standards (e.g., DOE/RL-96-0006), and provide adequate safety.

   This change does not alter compliance with the applicable laws and regulations and continues to conform to DOE/ RL-96-0006 4.2.2 *Proven Engineering Practices/Margins* by identifying the use of the applicable portions of the 2000 International Building Code for the 1997 Uniform Building Code. The IBC specifies fire resistant construction considering occupancy and building size to provide for adequate fire safety.

2. will continue to conform to the contract requirements associated with the authorization basis document(s) affected by the revision.

   The requirement for use of noncombustible or fire-resistive materials in the construction of buildings containing significant quantities of radioactive and/or hazardous materials is maintained by the use of the non-structural portions of IBC as the building code as tailored in Appendix C of the implementing standards in the SRD.

3. will not result in inconsistencies with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised.

   This change tailors implementing standards in the SRD and revises the PSAR where reference is made to the UBC for non-structural portions of the building code for the process building and the Laboratory to refer to the IBC. Commitment to the structural portion of the UBC and ACI 349 for SC-I process buildings are unaffected and the fire protection features related to specified codes and standards are not changed.

K. Justification of the Proposed Change

ABCN Number 24590-WTP-ABCN-ESH-02-033 Revision 0

ABCN Title Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

If the change requires DOE approval, provide a justification that demonstrates that the proposed change is safe. The UBC specifies building requirements for fire resistance, allowable floor area, building height limitations, and building separation. For the non-structural portion of the UBC, substantial building equivalencies are being pursued to adjust the UBC requirements to fit the special purpose industrial usage of WTP process buildings. The IBC similarly specifies these same requirements, however provides additional definitions, and allowances more specific to the design and special usage of the WTP process buildings. By applying the IBC, the need for these equivalencies are eliminated and the process building will be in full compliance with the prescriptive non-structural portion of the code for determining type of construction. The 2000 IBC is a more evolved and refined standard than the UBC, and is the recognized industry standard replacing the UBC. Applying the IBC to the non-structural portions of the facility design are more in line with project needs and will not compromise fire safety.

The format of both are similar and arranged so as to separate the non-structural aspects from the structural with little dependency between them. This similar format and separation of the non-structural requirements form the structural requirements provides for easy compatibility of the non-structural requirements of the 2000 IBC with the structural requirements of the 1997 UBC as well as the structural requirements of the ACI 347 for the SC-I process buildings. The 2000 IBC specifies construction types with fire ratings meeting acceptable fire safety resistance requirements. This change does not affect the level of fire safety intended in SRD Safety Criterion 4.5-2 by applying the requirements of the 2000 IBC as the implementing standard for fire protection features building containing radioactive or hazardous materials. Codes and standards identified as implementing standards in the SRD Safety Criteria are unaffected as they take precedence over the standard referenced in the IBC.

L. Certification of Continued SRD Adequacy

Based on evaluations from III.I, if either question III.I.1 is marked "Yes", Project Manager certification is required. The Project Manager's signature certifies that the revised SRD continues to identify a set of standards that provides adequate safety, complies with WTP applicable laws and regulations, and conforms with top-level safety standards and principles. This certification is based on adherence to the DOE/RL-96-0004 standards identification process and successful completion of review and confirmation by the PSC.

WTP Project Manager:	Ron Naventi		
	Print/Type Name	*Signature*	*Date*

M. List of Attachments

1. Page changes for Safety Requirements Document Volume II, 24590-WTP-SRD-ESH-01-001-02, Appendix C Section 6.0, and 10.0, Pages C.6-1, C.10-1
2. Page changes for 24590-WTP-PSAR-ESH-01-002-01, Preliminary Safety Analysis Report to Support Construction Authorization, General Information, Page 2-69
3. Page changes for 24590-WTP-PSAR-ESH-01-002-02, Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information, Preliminary, Page 2-77
4. Page changes for 24590-WTP-PSAR-ESH-01-002-03, Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information, Preliminary, Page 2-52
5. Page changes for 24590-WTP-PSAR-ESH-01-002-03, Preliminary Safety Analysis Report to

ABCN Number	24590-WTP-ABCN-ESH-02-033 Revision 0
ABCN Title	Application of IBC 2000 for Determination of Classification of Construction Type for the RPP-WTP Process Facilities and Analytical Laboratory

M. List of Attachments

Support Construction Authorization; HLW Facility Specific Information, Preliminary, Page 2-61

6. Telephone Conversation Record, Contact: Dennis McCreary – ICBO, *Date: 09/19/02*, Primary Topic: 2000 IBC Non-Structural/Structural Interface

ABCN No.
24590-WTP-ABCN-ESH-02-033, Rev.0
Attachment 1

Proposed Changes to Safety Requirements Document Volume II, 24590-WTP-SRD-ESH-01-001-02, Rev. 1f, Appendix C Section 6.0, and 10.0, Pages C.6-1, C.10-1

Total # of pages (including cover sheet): 3

6.0 NFPA 801, Standard for Facilities Handling Radioactive Materials

Revision: 1995 edition

Sponsoring Organization: National Fire Protection Association

WTP Specific Tailoring

The following tailoring of NFPA 801-95 is required for use by the WTP project as an implementing standard for fire safety.

Section 3-5

Replace "(Type I or Type II in accordance with NFPA 220, Standard on types of Building Construction)" with "(Fire resistance in accordance with the 1997 edition of the Uniform Building Code [UBC]~~)~~ and for the process buildings (LAW, HLW, and PT) and the Analytical Laboratory, the 2000 edition of the International Building Code [IBC])".

Justification: The applicable building code for WTP Project is the 1997 Uniform Building Code (UBC). UBC specifies building requirements for fire resistance, allowable floor area, building height limitations, and building separation.

For the process buildings (LAW, HLW, and PT) and the Analytical Laboratory, the non-structural portions of the 1997 UBC (Chapters 1-15 and 24-35) are updated to the 2000 IBC. The 2000 IBC is the follow on model building code to 1997 UBC and replaces the UBC.

Section 3-8

Replace entire section with the text of the same section from the 1998 version of NFPA 801.

Justification: The NFPA standard was revised in recognition of the impracticality of using only noncombustible surface finishes in areas processing or storing radioactive materials. Conformance with the revised standard will permit the use of limited combustible interior finishes.

Section 6.1.1

Change the code edition for NFPA 70 from 1993 to 1996 and the code edition for NFPA 780 from 1992 to 1995.

Justification: SRD safety criteria 4.3-2 and 4.4-12 reference these more recent editions of NFPA 70 and NFPA 780 as implementing standards. This change resolves the conflict with NFPA 801.

10.0 UBC 97, Uniform Building Code

Revision: 1997
Sponsoring Organization: International Conference of Building Officials

WTP Specific Tailoring

The following tailoring of UBC 97 is required for use by the WTP contractor as an implementing standard for design of reinforced concrete for Seismic Category III SSCs, as noted.

Division II Snow

Design for snow loads shall be in accordance with ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, section 7.0, utilizing ground snow loads identified in Safety Criterion 4.1-4.

Justification: This approach to design of snow loads is an acceptable industry practice for evaluation of structures under snow loads. This code is more thorough in its consideration of these loads than the UBC methodology.

Division III Wind

Design for wind loads shall be in accordance with ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, section 6.0, utilizing 3-second gust values identified in Safety Criterion 4.1-4.

Justification: This approach to design of wind loads is an acceptable industry practice for evaluation of structures under wind loads. This code is more thorough in its consideration of these loads than the UBC methodology.

The following tailoring of UBC 97 is required for use by the WTP contractor as a daughter standard referenced by the implementing standard for fire protection, as noted.

Chapters 1 through 15 and 24 through 35

Applicable to the process buildings (LAW, HLW, and PT) and the Analytical Laboratory Facility, replace Chapters 1 through 15 and 24 through 35 of the 1997 UBC with corresponding Chapters of the 2000 International Building Code (IBC)

Justification: For the process buildings (LAW, HLW, and PT) and the Analytical Laboratory Facility, the non-structural portions of the 1997 UBC are updated to the 2000 IBC. The 2000 IBC is the follow on model building code to 1997 UBC and replaces the UBC.

ABCN No.
24590-WTP-ABCN-ESH-02-033, Rev.0
Attachment 2

Proposed Changes to Preliminary Safety Analysis Report to Support Construction Authorization,
General Information
24590-WTP-PSAR-ESH-01-002-01 Rev.0

Page 2-67

Total # of pages (including cover sheet): 2

- Redundant primary and secondary fire protection systems will be provided in areas where SDC systems and components are vulnerable to fire damage, where no redundant safety capability exists outside the fire area.

2.7.2.1.5 C2/C3/C5 HEPA Filters Fire Protection

The preliminary fire hazards analyses are used to assess the level of fire protection required for the C2, C3, and C5 HEPA filters.

Appropriate systems will protect HEPA filters from smoke and high temperature, if determined to be required by the facility-specific fire hazard analysis. Where ventilation systems are designed to prevent the release of radioactive materials, materials of construction (including HEPA filters) are fire-resistant in accordance with UL 586, *High-Efficiency, Particulate, Air Filter Units* and ASME AG-1, *Code on Nuclear Air and Gas Treatment*, Section FC. If pre-filters are provided upstream of the HEPA units in the C5 extract system they will be listed as Class 1 air filters as tested per UL 900, *Test Performance of Air Filter Units*.

Filter frames will be of noncombustible construction. Filter plenums inside process buildings will be separated from other parts of the building in accordance with DOE-STD-1066, Section 14.3.1, Final Filter Plenums Located Inside Process Buildings. Combustibles such as electrical cables will not be permitted in the filter plenum space.

2.7.2.1.6 Flammable and Combustible Liquids Storage and Handling

Storage, handling, and processing of flammable and combustible liquids will conform to NFPA 30, *Flammable and Combustible Liquids*. See the BOF facility-specific PSAR volume for the dike requirements for fuel oil storage tanks.

2.7.2.2 Fire Protection Features for Process Buildings

The WTP process facilities will be subdivided into fire areas separated from each other by 2-hour fire-rated barriers to isolate potential fires and minimize risks due to the spread of fire and the resultant damage from heat, corrosive gases, fire extinguishing agents, smoke and radioactive contamination. Appropriate fire detection systems and fire extinguishing systems will be provided based on the results of a fire hazard analysis.

2.7.2.2.1 Building Construction

Buildings containing a significant quantity of radioactive or hazardous material will be constructed of noncombustible or fire-resistant material as appropriate.

Noncombustible materials will be used and have been fire-resistance tested per ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials* and ASTM E119, *Standard Method for Fire Tests of Building Construction and Materials*.

Fireproofing of structural steel in ~~ITS~~the process buildings and the Analytical Laboratory will be provided in accordance with ~~NFPA 220~~the 2000 International Building Code (IBC). ~~At locations where an analysis of fire time-temperature effects on the structural steel members demonstrate no need for fire proofing, appropriate equivalency will be established.~~

ABCN No.
24590-WTP-ABCN-ESH-02-033, Rev.0
Attachment 3

Proposed Changes to Preliminary Safety Analysis Report to Support Construction Authorization;
PT Facility Specific Information
Preliminary
24590-WTP-PSAR-ESH-01-002-02, Rev E

Page 2-76

Total # of pages (including cover sheet): 2

It has been demonstrated that the Hanford Fire Department can arrive at the site of a fire alarm in the 200 East area within ten minutes of notification to initiate manual fire fighting.

2.7.6.2 Fire Protection Features

The WTP is designed so that there are no in situ exposure fire hazards near the PT building. Neighboring buildings are separated from the PT building and do not represent an exposed fire hazard. Consistent with applicable building separation criteria (~~Uniform~~ International Building Code [~~UBC~~IBC] ~~1997, Table 5A~~2000), the exterior walls of the building will be non-combustible and non-rated insulated metal panels.

The building is classified as a Type II ~~FR~~ B structure in accordance with the ~~UBC~~IBC. Where structural failures could affect the capability to achieve a safe state, the fire resistance of structural steel members is analyzed to determine the need for fire proofing.

Manual fire alarm boxes (pull stations) are provided throughout the PT building at exit doors and every 200 ft along the designated egress path in accordance with NFPA 72, *National Fire Alarm Code*. The fire detection alarm system also transmits signals to the Hanford Fire Department.

Smoke detection is provided at specific locations in the facility in accordance with applicable codes.

A local fire alarm control panel for the PT building monitors the status of fire detection devices and the fire suppression system and provides for local fire alarms. The local fire alarm control panel also relays information to the main fire protection panel in the main control room. The local fire alarm control panel also signals interfacing systems such as ventilation systems, smoke/fire dampers, fire door closure interlocks, and process systems operations.

The main fire protection panel in the main control room also receives fire detection and fire suppression system status from the HLW, LAW, analytical laboratory, and BOF as well as the operating status of the fire water storage tanks, fire pump system, and fire main distribution in BOF.

2.7.6.3 Automatic Fire Suppression Systems

The automatic fire suppression systems in the PT building are primarily wet-pipe sprinkler systems designed in accordance with NFPA 13, *Standard for Installation of Sprinkler Systems*.

2.7.6.4 Standpipes and Portable Fire Extinguishers

A Class I wet standpipe system is provided in the PT building in accordance with NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*. Hose connections in stairwells and other protected locations facilitate access for fire fighting. Accessible areas of the building are within reach of at least one effective hose stream.

Portable fire extinguishers are in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*. The fire extinguishers are in easily accessible locations such as corridors, near exit doors, along routes of

travel, and near (but outside) radiation areas. Portable extinguishers are readily accessible for use in high radiation areas, but are not located inside those areas unless the fire hazards analysis for the affected fire area indicates otherwise.

ABCN No.
24590-WTP-ABCN-ESH-02-033, Rev.0
Attachment 4

Proposed Changes to Preliminary Safety Analysis Report to Support Construction Authorization;
LAW Facility Specific Information
24590-WTP-PSAR-ESH-01-002-03, Rev 0

Page 2-51

Total # of pages (including cover sheet): 2

well as access routes and areas where manual actions may be required to achieve and maintain a safe state in an emergency.

C5 and R5 areas, however, do not have a fire suppression system. An exception was granted because the R5 areas will not contain significant combustibles. The walls around the C5 and R5 areas are designed as a 2-hr rated fire barrier. However, because no significant combustibles are in the R5 areas, there is virtually no possibility of a fire in these areas.

It has been demonstrated that the Hanford Site Fire Brigade can arrive at the site of a fire alarm in the 200 East area within 10 minutes of notification to initiate manual firefighting.

2.7.4.2 Fire Protection Features

The WTP is laid out so that there are no in-situ exposure fire hazards near the LAW building. Neighboring buildings are at least 85 ft from the LAW building, and thus do not represent an exposure fire hazard. Consistent with applicable building separation criteria (~~UBC 1997, Table 5A~~2000 IBC), the exterior walls of the building will be noncombustible and nonrated. Exterior walls will be insulated metal panels.

The building is classified as a Type II ~~FR~~ B structure in conformance with the ~~UBC~~IBC. Where structural failures could affect the capability to achieve a safe state, the fire resistance of structural steel members are analyzed to determine the need for fire proofing.

Manual fire alarm boxes (pull stations) are provided throughout the LAW building at exit doors and every 200 ft along the designated egress path in accordance with NFPA 72. The fire detection alarm system also transmits signals to the Hanford Fire Department.

Smoke detection is provided at specific locations in the facility as required by applicable codes.

A local fire alarm control panel for the LAW Building monitors the status of fire detection devices and the fire suppression system, and provides for local fire alarms. The local fire alarm control panel relays information to the main fire-protection panel, in the PT facility MCR. It also signals interfacing systems such as ventilation systems, smoke/fire dampers, fire door closure interlocks, and process systems operations.

The main fire protection panel pulls fire detection and fire suppression system status from the LAW, HLW, and BOF and the operating status of the fire water storage tanks, fire pump system, and fire main distribution.

2.7.4.3 Automatic Fire Suppression Systems

The automatic fire suppression systems in the LAW Building are primarily wet-pipe sprinkler systems designed in accordance with NFPA 13.

2.7.4.4 Standpipes and Portable Fire Extinguishers

A class I wet standpipe system is provided in the LAW Building in accordance with NFPA 14. Hose connections in stairwells and other protected locations facilitate access for firefighting. Accessible areas of the building are within reach of at least one effective hose stream.

ABCN No.
24590-WTP-ABCN-ESH-02-033 Rev.0
Attachment 5

Proposed Changes to Preliminary Safety Analysis Report to Support Construction Authorization;
HLW Facility Specific Information
24590-WTP-PSAR-ESH-01-002-04, Rev 0

Page 2-61
Total # of pages (including cover sheet): 2

Egress is provided in accordance with National Fire Protection Association (NFPA) 101. Exit signs are posted and at least two means of egress are provided from each fire area.

The lighting system provides both normal illumination of the means of egress and emergency lighting. Emergency lighting is provided in accordance with NFPA 101 requirements for the means of egress, as well as access routes and areas where manual actions may be required to achieve and maintain a safe state in an emergency.

C5 and R5 areas, however, do not have a fire suppression system. An exception was granted because the C5 areas will not contain significant combustibles. The walls around the C5 and R5 areas are designed as a 2-hour rated fire barrier. However, because no significant combustibles are in the C5 areas, there is virtually no possibility of a fire in this area.

It has been demonstrated that the Hanford Site Fire Brigade can arrive at the site of a fire alarm in the 200 East area within 10 minutes of notification to initiate manual firefighting.

2.7.1.2 Fire Protection Features

The WTP is laid out so that there are no in-situ exposure fire hazards near the HLW building. Neighboring buildings are at least 85 ft from the HLW building, and thus do not represent an exposure fire hazard. Consistent with applicable building separation criteria (~~UBC~~ IBC ~~1997, Table 5A~~2000), the exterior walls of the building will be noncombustible and nonrated. Exterior walls will be insulated metal panels.

The building is classified as a Type II ~~FR~~ B structure in accordance with the ~~UBC~~IBC. Where structural failures could affect the capability to achieve a safe state, the fire resistance of structural steel members is analyzed to determine the need for fire proofing.

Manual fire alarm boxes (pull stations) are provided throughout the HLW building at exit doors and every 200 ft along the designated egress path in accordance with NFPA 72. The fire detection alarm system also transmits signals to the Hanford Fire Department.

Smoke detection is provided at specific locations in the facility in accordance with applicable codes.

A local fire alarm control panel for the HLW Building monitors the status of fire detection devices and the fire suppression system, and provides for local fire alarms. The local fire alarm control panel also relays information to the main fire-protection panel, in the PT facility main control room. The local fire alarm control panel also signals interfacing systems such as ventilation systems, smoke/fire dampers, fire door closure interlocks, and process systems operations.

The main fire protection panel pulls fire detection and fire suppression system status from the HLW, LAW, and BOF, and the operating status of the fire water storage tanks, fire pump system, and fire main distribution.

2.7.1.3 Automatic Fire Suppression Systems

The automatic fire suppression systems in the HLW Building are primarily wet-pipe sprinkler systems designed in accordance with NFPA 13.

ABCN No.
24590-WTP-ABCN-ESH-02-033, Rev.0
Attachment 6

Telephone Conversation Record

Contact: Dennis McCreary – ICBO

Date: 09/19/02

Primary Topic: 2000 IBC Non-Structural/Structural Interface

Total # of pages (including cover sheet): 2

River Protection Project
Waste Treatment Plant
3000 George Washington Way
Richland, WA 99352 USA
Tel: 509 371 3500
Fax: 509 371 3504

Contact: Dennis McCreary - ICBO
Contract No: DE-AC27-01RV14136

CCN: 042364

Telephone Conversation Record

Date: 09/19/02
Time: 2:30pm
Location: Main Bldg. H116
Originator: Mark S Rees
Primary Topic: 2000 IBC Non-Structural/Structural Interface

Issue: An Authorization Basis Change Notice (ABCN) is being developed to allow use of the 2000 International Building Code (IBC) in place of 1997 Uniform Building Code (UBC) for determination of LAW, HLW, PTF, and Analytical Laboratory (LAB) Type of Construction. This ABCN will in essence separate non-structural portions of the IBC from structural. The current draft anticipates Structural design will continue to be performed following 1997 UBC for the LAW and LAB, and other DOE structural criteria for the HLW and PTF.

A telephone contact was made to the International Conference of Building Officials (ICBO) to determine if de-coupling of IBC non-structural chapters from structural is advisable, and if the development of the non-structural portion is dependent on the structural portions.

Mr. Dennis McCreary of the ICBO Whittier, CA office was contacted. Larry Kessie (BNI architectural supervisor), Chuck McKnight (BNI fire protection supervisor/lead), and the originator attended for the speaker telephone conversation.

Mr. McCreary indicated he was 99% certain the non-structural chapters do not rely on the structural portions of the IBC for their development, and that he knows of no items which will be affected by separation of the IBC non-structural chapters from structural. He also indicated that this was the first time this particular question has been asked.

Mr. McCreary further stated that the ICBO would be against mixing non-structural portions of the UBC and IBC, but making a break between the non-structural and structural components would not be the same concern.

Signature
Date: 9/23/02

Distribution

Kessie. L.	WTP	MS5-H
McKnight, C.	WTP	MS7-ANW
Rees, M.	WTP	MS5-H
PDC	WTP	MS5-K.1